

Appl. No. : 09/908,994  
Filed : July 17, 2001

## AMENDMENT TO THE CLAIMS

Please amend Claim 21 as shown below:

1. — 20. (Cancelled)

21. (Currently amended) A method for isolating one or more different-sequence polynucleotides from a mixture, the method comprising:

(a) flowing the mixture through a flow path containing a plurality of solid supports which are located in series in the flow path, such that the mixture flows serially through each of the plurality of solid supports, each support having bound thereto a sequence-specific capture agent complementary to a different-sequence polynucleotide, under conditions effective to specifically bind different-sequence polynucleotides to corresponding sequence-specific capture agents on one or more of the supports,

(b) after step (a)said specific binding, releasing bound polynucleotides from a selected support by altering a physical property of that support while leaving unaltered the same physical property of at least one other of the supports, wherein the physical property is temperature, and wherein said releasing is accomplished by heating a first solid support; and

(c) eluting the released polynucleotides through the flow path such that the eluted polynucleotides can be isolated in separated form.

22. (Previously presented) The method of claim 21, wherein said altering further comprises selectively heating a second solid support to release bound polynucleotides therefrom, to allow preferential elution of the polynucleotides released from the second solid support.

23. (Previously presented) The method of claim 22, wherein heating of the first and second supports is performed simultaneously, and the polynucleotides released thereby are eluted in separate form, without mixing with each other.

24. (Previously presented) The method of claim 21, wherein (i) the polynucleotide mixture comprises a plurality of different polynucleotide populations, each different polynucleotide population comprising a plurality of different polynucleotides that contain a distinct sequence associated with that population, and (ii) different sequence-specific capture

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agents on the different solid supports are complementary to different polynucleotide populations in the mixture.

25. **(Previously presented)** The method of claim 21, wherein the polynucleotide mixture comprises a plurality of sequencing ladders.

26. **(Previously presented)** The method of claim 21, wherein the polynucleotide mixture comprises a plurality of PCR products.

27. **(Previously presented)** The method of claim 21, wherein the polynucleotide mixture comprises a plurality of ligation products.

28. **(Previously presented)** The method of claim 21, wherein the different-sequence polynucleotides in the mixture include recovery tags for which the capture agents are complementary.

29. **(Previously presented)** The method of Claim 21, wherein all of the solid supports in the flow path are located sequentially in the flow path.

30. **(Previously presented)** The method of Claim 21, wherein all of the mixture flows through every one of the solid supports as the mixture proceeds down the flow path.

31. **(Previously presented)** The method of Claim 21, wherein the solid support has an external surface and the flow path is defined by a structure having an internal surface, and wherein the external surface of the solid support abuts the internal surface of the flow path so that the mixture flows through the solid support in order to proceed down the flow path.

32. **(Previously presented)** The method of Claim 21, wherein the solid support has an external surface and the flow path is defined by a structure having an internal surface, wherein the external surface of the solid support is immediately surrounded by the internal surface of the structure defining the flow path.

33. **(Previously presented)** The method of Claim 21, wherein the solid support has an external surface and the flow path is defined by a structure having an internal surface, wherein the structure defining the flow path is a cylindrical tube made of heat-shrinkable plastic, and wherein the heat-shrinkable plastic immediately surrounds the external surface of the solid support.

34. **(Previously presented)** The method of Claim 21, wherein the flow path is defined by a column.

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35. **(Previously presented)** The method of Claim 34, wherein the column is a cylindrical column.

36. **(Previously presented)** The method of Claim 35, wherein the solid support is a cylindrically shaped frit.

37. **(Previously presented)** The method of Claim 36, wherein an external surface of the cylindrically shape frit is immediately surrounded by an internal surface of the column so that all of the mixture flows through the solid support in order to proceed down the flow path.

38. **(Previously presented)** The method of Claim 21, wherein the heating of the solid support is achieved via a heating element that enwraps the solid support.